GRANT SUMMARY

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Use the tab and arrow keys to move through the form. If field is not applicable, please put N/A in field.

Date filled out: 6/9/2008

Grant Information: Please use complete phrases/sentences. Fields will expand as you type.

1. **Grant Agreement Number:** 04-318-555-1
2. **Project Title:** Pheromone Mating Disruption as an Alternative to Organophosphate Use in Walnuts: A Cost Analysis
3. **Project Purpose - Problem Being Addressed:** Water quality in agricultural areas is often of concern due to large amounts of organophosphate (OP) pesticide runoff from orchards into nearby water bodies. The Middle San Joaquin-Lower Merced-Lower Stanislaus watershed (HUC 18040002) is listed on the EPA 303d list. Chlorpyrifos, a popular organophosphate pesticide used by walnut growers to control codling moth, is a pesticide listed as impairment for this watershed. Literature has shown that high levels of chlorpyrifos in the river systems can be acutely toxic to aquatic organisms (Yee, 2002; Menconi and Paul, 1994).

Pheromone use is an alternative to chlorpyrifos for codling moth control in walnuts that has been recommended in programs such as Biologically Integrated Orchard Systems (Grant et al., 2003), the University of California Statewide Integrated Pest Management Systems Program (UC IPM), and the California Department of Pesticide Regulation's (DPR) Pest Management Alliance Program (PMA). An important concern, however, is the cost associated with this alternative. Growers are not likely to adopt this form of control if it significantly raises their costs. There have been many studies documenting pheromones as an effective means of pest control, but very little current research on the economic viability. In the past, as being too costly due to the earlier, labor-intensive forms many growers dismissed pheromones. However, there have been new innovations in pheromone application methods, such as a Sprayable pheromone, that may have significantly reduced costs. Many growers will choose controls that benefit the environment and reduce runoff into water if the costs are reasonable.

The goal of this project is to reduce chlorpyrifos pollution in the watershed by eliminating or reducing its use through the promotion of the alternative pest management strategy: pheromone mating disruption of codling moth. As a continuation of a current reduced-risk pest management strategy project funded through the US EPA, the objectives of this implementation project are to conduct an economic analysis of both the direct and indirect costs and benefits of the most recent innovations in pheromone applications, to disseminate the information to growers through outreach and education, and finally to monitor and assess the effectiveness of the research and outreach.

Given that a switch from chlorpyrifos to pheromones will reduce the amount of chlorpyrifos entering surface water, the watershed will benefit from the research and outreach of this project as newly informed growers' change to pheromones. Environmentally sustainable alternatives such as pheromone use will be adopted on a large scale only if they are economically justifiable. Projects, such as this one, are, therefore, invaluable in providing the economic examination necessary for growers to move toward pest control with reduced or no environmental impact. The economic conclusions of this project, in conjunction with effective outreach and assessment methods, will not only benefit this local area, but can be extended to promote implementation in all walnut orchards in California. Through the research of this project, the impact of chlorpyrifos on water quality will ultimately be reduced.

[redacted]

4. **Project Goals**

a. **Short-term Goals:** The goal of the project is to compare economic and environmental impact tradeoffs between pheromone-based low risk alternative pest management strategies and conventional pest management strategies as currently practiced by walnut growers in California, in order to assess economic feasibility

b. **Long-term Goals:** To promote the reduction in use of high risk pesticides when economically feasible lower risk strategies are available

5. **Project Location:** (lat/longs, watershed, etc.) San Joaquin Valley

a. **Physical Size of Project:** (miles, acres, sq. ft., etc.) Based on the 2007 California Walnut Acreage report, the size of the project is a total of 58,299 acres (Merced: 6219, Stanislaus: 20590, San Joaquin: 31,490)

b. **Counties Included in the Project:** San Joaquin, Stanislaus, Merced

c. **Legislative Districts:** (Assembly and Senate)

6. **Which SWRCB program is funding this grant?** Please "X" box that applies.

☐ Prop 13 ☐ Prop 40 X☐ Prop 50 ☐ EPA 319(h) ☐ Other

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Grant Time Frame: Refers to the implementation period of the grant.

From: 6/2005 **To:** 9/2008

Project Partner Information: Name all agencies/groups involved with project. UCCE, CAFF, UCD

Nutrient and Sediment Load Reduction Projection: (If applicable) n/a

Please provide a hard copy to your Grant Manager and an electronic copy to your Program Analyst for SWRCB website posting. All applicable fields are mandatory. Incomplete forms will be returned.